Montana Fish, Wildlife & Parks

SPECIFICATIONS FOR WORK
SPECIAL PROVISIONS

Contents:

1. PROJECT DESCRIPTION

The Project involves construction work associated with:

Canyon Creek Wildlife Management Area (WMA) Parking Area Development & Bridge Foundation Repairs
Fish, Wildlife & Parks (FWP) project # 7155327
Located in Lewis & Clark County, MT

The project generally includes re-grading of the road approach and entrance road, a new parking area involving clearing and grubbing, excavation/embankment construction, gravel base course, conserved topsoil placement, fence installation, and incidentals.

2. PROJECT RELATED CONTACTS

Project contacts are designated as follows:

Owner:
Montana FWP
1420 E. Sixth Ave.
PO Box 200701
Helena, MT 59620-0701

FWP Project Representative:
Phil Jagoda, P.E.
FWP Project Manager
1522 9th Avenue
Helena, MT 59620
406-841-4009 (wk)
406-431-3755 (cell)
406-841-4004 (fax)

3. SITE INSPECTION

All Bidders should satisfy themselves as to the construction conditions by personal examination of the site described in this document. Bidders are encouraged to make any - investigations necessary to assess the nature of the construction and the difficulties to be encountered, see General Conditions, Article 3.

4. SOILS INFORMATION

Geotechnical investigation work has not been done for this Project. It is the responsibility of the Bidders to conduct all investigations and determine the soil type and digging conditions that may be encountered with this Project prior to bid preparation, see General Conditions, Article 3.

5. PROJECT REPRESENTATIVE, INSPECTIONS, AND TESTING

The Contractor's work will be periodically tested and observed to insure compliance with the Contract Documents. Complete payment will not be made until the Contractor has demonstrated that the work is complete and has been performed as required. If the Project Representative detects a discrepancy between the work and the requirements of the Contract Documents at any time, up to and including final inspection, such work will not be completely paid for until the Contractor has corrected the deficiency, see General Conditions, Article 9.

The Project Representative will periodically monitor the construction of work to determine if the work is being performed in accordance with the contract requirements. The Project Representative does not have the authority or means to control the Contractor's methods of construction. It is, therefore, the Contractor's responsibility to utilize all methods, equipment, personnel, and other means necessary to assure that the work is installed in compliance with the Drawings and Specifications, and laws and regulations applicable to the work. Any discrepancies noted shall be brought to the Contractor's attention, who shall immediately correct the discrepancy. Failure of the Project Representative to detect a discrepancy will not relieve the Contractor of his ultimate responsibility to perform the work as required, see General Conditions, Article 3.

The Contractor shall inspect the work as it is being performed. Any deviation from the Contract requirements shall be immediately corrected. Prior to any scheduled observation by the Project Representative, the Contractor shall again inspect the work and certify to the Project Representative that he has inspected the work and it meets the requirements of the Contract Documents. The Project Representative may require uncovering of work to verify the work was installed according to the contract documents, see General Conditions, Article 12.

The work will be subject to review by the Project Representative. The results of all such observations, and all contract administration, shall be directed to the Contractor only through the Project Representative.

5.1 Services Required by the Contractor. The Contractor shall provide the following services:

a. Any field surveys to establish locations, elevations, and alignments as stipulated on the Contract Documents. FWP reserves the right to set preliminary construction staking for the project. The Contractor is responsible to notify FWP for any construction staking discrepancies.

b. Preparation and certification of all required shop drawings and submittals as described in the General Conditions, Article 3.

c. All testing requiring the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to the Project Representative. The laboratory shall be staffed with experienced technicians properly equipped, and fully qualified to perform the tests in accordance with the specified standards.

d. Preparation and submittal of a construction schedule, including submittals, see General Conditions, Article 3. The schedule shall be updated as required, as defined in the Contract Documents.

e. All Quality Control testing as required by the Contractor's internal policies.

f. All Quality Assurance testing and/or re-testing as stated in the Contract Documents, see General Conditions, Article 13.

5.2 Services Provided by the Owner. The Owner shall provide the following services at no cost to the Contractor except as required for retests as defined in the Contract Documents.

a. The Project Representative may check compaction of backfill and surfacing courses using laboratory testing submittal information supplied by the Contractor. These tests are to determine if compaction requirements are being fulfilled in accordance with the Contract Documents. It is ultimately the responsibility of the Contractor to insure that this level of compaction is constant and met in all locations.

b. Any additional Quality Assurance testing deemed appropriate by the Owner, at the Owner's expense.

6. ENGINEERING INTERPRETATIONS

Timely Engineering decisions on construction activities or results have an important bearing on the Contractor's schedule. When engineering interpretation affects a plan design or specifications change, it should be realized that more than 24 hours may be required to gain the necessary Owner participation in the decision process including time for formal work directive or change order preparation as required.

7. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to the expiration of the warranty period, shall be removed and replaced with work or materials conforming to the provisions of the Contract Documents, see General Conditions, Article 12. Failure on the part of the Project Representative to condemn or reject bad or inferior work, or to note nonconforming materials or equipment on the Contractors submittals, shall not be construed to imply acceptance of such work. The Owner shall reserve and retain all its rights and remedies at law against the Contractor and its Surety for correction of any and all latent defects discovered after the guarantee period (MCA 27-2-208).

Only the Project Representative will have the authority to reject work which does not conform to the Contract Documents.

8. UTILITIES

The exact locations of existing utilities that may conflict with the work are not precisely known. It shall be the Contractor's responsibility to contact the owners of the respective utilities and arrange for field location services. **One Call Locators, 1-800-424-5555**

The Contract Documents may show utility locations based on limited field observation and information provided to the Project Representative by others. **The Project Representative cannot guarantee their accuracy.** The Contractor shall immediately notify the Project Representative of any discrepancies with utility locations as shown on the Contract Drawings and/or their bury depths that may in any way affect the intent of construction as scoped in these specifications.

There will be no separate payment for exploratory excavation required to locate underground utilities.

8.1 Notification. The Contractor shall contact, in writing, all public and private utility companies that may have utilities encountered during excavation. The notification includes the following information:

a. The nature of the work that the Contractor will be performing.
b. The time, date and location that the Contractor will be performing work that may conflict with the utility.
c. The nature of work that the utility will be required to perform such as moving a power pole, supporting a pole or underground cable, etc.
d. Requests for field location and identification of utilities.

A copy of the letter of notification shall be provided to the Project Representative. During the course of construction, the Contractor shall keep the utility companies notified of any change in schedule, or nature of work that differs from the original notification.

8.2 Identification. All utilities that may conflict with the work shall be the Contractor's responsibility to locate before any excavation is performed. Field markings provided by the utility companies shall be preserved by the Contractor until actual excavation commences. All utility locations on the Drawings should be considered approximate and should be verified in the field by the Contractor. The Contractor shall also be responsible for locating all utilities that are not located on the Drawings.

Utilities are depicted on the Contract Documents in accordance with their achieved “Quality Levels,” as defined in the American Society of Civil Engineer’s Document, ASCE 38, “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.” Reliance upon these data for risk management purposes during bidding does not relieve the Contractor, or Utility Owner from following all applicable utility damage prevention statutes,

policies, and/or procedures during construction. It is important that the Contractor investigates and understands the scope of work between the project Owner and Engineer regarding scope of limits of the utility investigations leading to these utility depictions. Definitions of Quality Levels are described as follows:

a. "QUALITY LEVEL A" – (QLA): LOCATING THROUGH EXCAVATION. QLA data are highly accurate and are obtained by surveying an exposed utility. As such, both horizontal and vertical data are recorded. Survey accuracies are typically set at 15mm (1/2-inch) vertically, and to project survey standards horizontally (typically the same as for topography features), although these survey accuracies and precisions are generally left to the owner to specify in a scope of work. In addition to the applicable standard of care and any other additional standards imposed by commercial indemnity clauses, the accuracy of these location data is also typically guaranteed. Other data typically characterized include material type, surface elevation, utility size/capacity, outside dimensions, and configurations, soil type, and utility condition.

b. "QUALITY LEVEL B" – (QLB): DESIGNATING. QLB information is obtained through the application of appropriate surface geophysical methods to identify the existence and approximate horizontal location of utilities (a utility's "designation") within the project limits, followed by survey, mapping, and professional review of that designation. Underground utilities are identified by interpretation of received signals generated either actively or passively, and through correlating these received signals with visible objects (QLC) and record data (QLD) to determine function. Designated utilities that can't be identified are labeled as "unknowns." Although approximate has no accuracy associated with it, generally the locations are within inches rather than feet. The more utility congested the area or the deeper the utilities, the less likely it is that the designations will achieve that accuracy. These designations are then surveyed to project accuracies and precisions, typically third-order accuracy similar to other topography features. Note that surveying existing one-call marks does not lead to QLB data, since the genesis of the marks was not under the direct responsible charge of the professional certifying the QLB depictions, and one-call generally does not address unknown utilities, privately owned utilities, utilities without records, abandoned utilities, and so on. Nor does the professional have knowledge of the field technician's qualifications, training, and level of effort.

c. "QUALITY LEVEL C" – (QLC): SURFACE VISIBLE FEATURE SURVEY. QLC builds upon the QLD information by adding an independent detailed topography site survey for surface-visible appurtenances of subsurface utilities including but not limited to fire

hydrants, valves, risers, and manholes. Professional judgment is used to correlate the QLD data to the surveyed features, thus increasing the reliability of both utility location and existence. It is a function of the professional to determine when records and features do not agree and resolve discrepancies. This may be accomplished by depiction of a utility line at quality level D, effectively bypassing or disregarding (but still depicting) a surveyed structure of unknown origin. Additional resolution may result from consultation with utility owners.

d. "QUALITY LEVEL D" – (QLD): EXISTING RECORDS RESEARCH. QLD is the most basic level of information. Information is obtained from the review and documentation of existing utility records, verbal accounts, and/or one-call markings (to determine the existence of major active utilities and their approximate locations).

8.3 Removal or Relocation of Utilities. All electric power, street lighting, gas, telephone, and television utilities that require relocation will be the responsibility of the utility owner. A request for extending the specified contract time will be considered if utility owners cause delays.

8.4 Public Utilities. Water, sewer, storm drainage, and other utilities owned and operated by the public entities shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All such work shall be in accordance with these Contract Documents, or the Owner's Standard Specifications or written instructions when the work involved is not covered by these Specifications.

8.5 Other Utilities. Utilities owned and operated by private individuals, railroads, school districts, associations, or other entities not covered in these Special Provisions shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All work shall be in accordance with the utility owner's directions, or by methods recognized as being the standard of the industry when directions are not given by the owner of the utility.

8.6 Damage to Utilities and Private Property. The Contractor shall protect all utilities and private property and shall be solely responsible for any damage resulting from his construction activities. The Contractor shall hold the Owner and Project Representative harmless from all actions resulting from his failure to properly protect utilities and private property. All damage to utilities shall be repaired at the Contractor's expense to the full satisfaction of the owner of the damaged utility or property. The Contractor shall provide the Owner with a letter from the owner of the damaged utility or property stating that it has been repaired to the utility owner's full satisfaction.

8.7 Structures. The Contractor shall exercise every precaution to prevent damage to existing buildings or structures in the vicinity of his work. In the event of such damages, he shall repair them to the satisfaction of the owner of the damaged structure at no cost to the Owner.

8.8 Overhead Utilities. The Contractor shall use extreme caution to avoid a conflict, contact, or damage to overhead utilities, such as power lines, streetlights, telephone lines, television lines, poles, or other appurtenances during the course of construction of this project.

8.9 Buried Gas Lines. The Contractor shall provide some means of overhead support for buried gas lines exposed during trenching to prevent rupture in case of trench caving.

8.10 Pavement Removal. Where trench excavation or structure excavation requires the removal of curb and gutter, concrete sidewalks, or asphalt or concrete pavement, the pavement or concrete shall be cut in a straight line parallel to the edge of the excavation by use of a spade-bitted air hammer, concrete saw, colter wheel, or similar approved equipment to obtain a straight, square clean break. Pavement cuts shall be 2 feet wider than the actual trench opening.

8.11 Survey Markers and Monuments. The Contractor shall use every care and precaution to protect and not disturb any survey marker or monuments, such as those that might be located at lot or block corners, property pins, intersection of street monuments or addition line demarcation. Such protection includes markings with flagged high lath and close supervision. No monuments shall be disturbed without prior approval of the Project Representative. Any survey marker or monument disturbed by the Contractor during the construction of the project shall be replaced at no cost to the Owner by a licensed land surveyor.

8.12 Temporary Utilities. The Contractor shall provide all temporary electrical, lighting, telephone, heating, cooling, ventilating, water, sanitary, fire protection, and other utilities and services necessary for the performance of the work. All fees, charges, and other costs associated therewith shall be paid for by the Contractor.

9. CONSTRUCTION SAFETY

The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees and subcontractors) and property during performance of the work. This requirement shall apply continuously and not be

limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve them from compliance with the obligations and penalties set forth therein, see General Conditions, Article 10.

10. CONSTRUCTION LIMITS AND AREAS OF DISTURBANCE

10.1 Construction Limits. Where construction easements or property lines, are not specifically called out on the Contract Documents, limit the construction disturbance to ten (10) feet, when measured from the edge of the slope stake grading, or to the adjacent property line, whichever is less. Disturbance and equipment access beyond this limit is not allowed without the written approval of both the Project Representative and the Owner of the affected property. If so approved, disturbance beyond construction limits shall meet all requirements imposed by the landowner; this includes existing roads used and/or improved as well as the construction of new access roads. Special construction, reclamation, or post-construction reclamation or other closure provisions required by the landowner on access roads beyond the construction limits shall be performed by the Contractor at no additional cost to the Owner.

10.2 Areas of Disturbances. Approved areas of disturbance are those areas disturbed by construction activities within the construction limits and along designated or approved access routes. Such areas may require reclamation and revegetation operations, including grading to the original contours, top soiling with salvaged or imported topsoil, seeding, fertilizing, and mulching as specified herein. Other areas that are disturbed by the Contractor's activities outside of the limits noted above will be considered as site damage or unapproved areas of disturbance, see General Conditions, Articles 3 and 10. This includes areas selected by the Contractor outside the defined construction limits for mobilization, offices, equipment, or material storage.

11. DECONTAMINATE CONSTRUCTION EQUIPMENT

Power wash all construction equipment entering the project site to prevent the spread of noxious weeds and aquatic invasive species. This applies to all FWP projects, whether or not individual construction permits specifically address cleaning of equipment.

12. TREE PROTECTION AND PRESERVATION

The Contractor and the Owner shall individually inspect all trees within the project construction limits prior to construction. The Owner shall determine which trees are to be removed and which trees are to be preserved. Construction of the grading, utilities and various roadway facilities must not significantly damage the trees root system or hinder it's chances for survival. Reasonable variations from the Contract Documents,

as directed by the Project Representative, may be employed to ensure the survival of trees.

13. CONSTRUCTION SURVEYS

The Contractor will be responsible for all layout and construction staking utilizing the Project Representative's existing control and coordinate data for the project. Dimensions and elevations indicated in layout of work shall be verified by the Contractor. Discrepancies between Drawings, Specifications, and existing conditions shall be referred to the Project Representative for adjustment before work is performed. The Project Representative may set location and grade stakes prior to construction; however, it is ultimately the responsibility of the Contractor to check and verify all construction staking for the project.

Existing survey control (horizontal and vertical) has been set for use in the design and ultimately the construction of these improvements. A listing of the coordinates and vertical elevation for each of these control points may be included in the project drawings.

The Contractor will be responsible for preserving and protecting the survey control until proper referencing by the Contractor has been completed. Any survey control obliterated, removed, or otherwise lost during construction will be replaced at the Contractor's expense.

Contractor shall be aware of property pins and survey monuments. Damage to these pins will require replacement of such by a registered land surveyor at no cost to the owner.

The Contractor shall provide construction staking from the Contractor's layouts and the control points. Contractor's construction staking includes at a minimum:

1. Slope stakes located at critical points as determined by the Project Representative.
2. Blue tops every longitudinally and transversely for subgrade and crushed base to verify finish grading of course.
3. Location and grade stakes for drainage features and retaining walls.
4. Location stakes for roadside safety items, permanent and temporary traffic control, and misc. items as determined by the Project Representative.

Original field notes, computations and other records take by the Contractor for the purpose of quantity and progress surveys shall be furnished promptly to the Project Representative and shall be used to the extent necessary in determining the proper amount of payment due to the Contractor.

14. MATERIAL SOURCES AND CONSTRUCTION WATER

The Contractor shall be responsible for locating all necessary material sources, including aggregates, earthen borrow and water necessary to complete the work. The Contractor shall be responsible for meeting all transportation and environmental regulations as well as paying any royalties. The Contractor shall provide the Project Representative with written approvals of landowners from whom materials are to be obtained, prior to approval.

The Contractor may use materials from any source, providing the materials have been tested through representative samples and will meet the Specifications.

Water for compaction efforts shall be supplied by the Contractor.

15. MATERIALS SALVAGE AND DISPOSAL

Notify the Owner for any material salvaged from the project site not identified in the Contract Documents. The Owner reserves the right to maintain salvaged material at the project site, compensate the Contractor for relocation of salvaged material, or agreed compensation to Owner for material salvaged by the Contractor.

Haul and waste all waste material to a legal site and obey all state, county, and local disposal restrictions and regulations.

16. STORED MATERIALS

Contractor shall use an approved storage area for materials. Materials and/or equipment purchased by the Contractor may be compensated on a monthly basis. For compensation, provide the Project Representative invoices for said materials, shop drawings and/or submittals for approval, and applicable insurance coverage, see General Conditions, Article 9.

17. STAGING AND STOCKPILING AREA

Contractor shall use staging and stockpiling sites for to facilitate the project as approved by the Owner. Contract Documents may show approved staging and stockpiling locations. Notify Owner within 24 hours for approval of staging and stockpiling sites not shown on the Contract Drawings.

18. SECURITY

The Contractor shall provide all security measures necessary to assure the protection of equipment, materials in storage, completed work, and the project in general.

19. CLEANUP

Cleanup for each item of work shall be fully completed and accepted before the item is considered final. If the Contractor fails to perform cleanup within a timely manner the Owner reserves the right to withhold final payment.

20. ACCESS DURING CONSTRUCTION

Provide emergency access at all times within the project throughout the construction period.

21. CONSTRUCTION TRAFFIC CONTROL

The Contractor is responsible for providing safe construction and work zones within the project limits by implementing the rules, regulations, and practices of the Manual on Uniform Traffic Control Devices, current edition.

22. SANITARY FACILITIES

Provide on-site toilet facilities for employees of Contractor and Sub-Contractors and maintain in a sanitary condition.

23. CONTRACT CLOSEOUT

The Contractor's Superintendent shall maintain at the project site, a "Record Set of Drawings" showing field changes, as-built elevations, unusual conditions encountered during construction, and such other data as required to provide the Owner with an accurate "as constructed" set of record drawings. The Contractor shall furnish the "Record Set" to the Project Representative following the Final Inspection of the Project.

The Contractor's final payment will not be processed until the "Record Set" of drawings are received and approved by the Project Representative.

24. MEASUREMENT AND PAYMENT

Review these Contract Documents for additional Measurement and Payment specifications for definitions. Quantities are listed on the Bid Proposal for Payment Items. Additional material quantities, volumes, and measurements may be shown on the Contract Document drawings and/or specifications.

Unit Price quantities and measurements shown on the Bid Proposal are for bidding and contract purpose only. Quantities and measurements supplied, completed for the project, and verified by the Project Representative shall determine payment. Each unit price will be deemed to include an amount considered by the Contractor to be adequate to cover Contractor's overhead and profit for each bid item.

The Owner or Contractor may make a Claim for an adjustment in Contract Unit Price if the quantity of any item of Unit Price Work performed by the Contractor differs materially and/or significantly (increase or decrease by 50%) from the estimated quantity indicated on the Bid Proposal.

Lump sum bid item quantities will not be measured. Payment for these lump sum bid proposal items will be paid in full amount listed on the Bid Proposal when accepted by the Project Representative, unless specified otherwise.

SPECIFICATIONS FOR WORK

TECHNICAL PROVISIONS

Incorporation of Montana Public Works Technical Specifications.

The Technical Specifications as found in Montana Public Works Standard Specifications (MPWSS), Sixth Edition, April 2010 Addendum; are hereby incorporated by reference and made a part of this Contract:

Incorporation of Montana Fish, Wildlife & Parks Technical Specifications and Modifications to MPW Technical Specifications.

In addition to the MPWSS Technical Specifications are the following Montana Fish, Wildlife & Parks Technical Specifications (modifications to MPWSS Technical Specifications).

SECTION 01010-	Summary of Work
SECTION 01050 -	Field Engineering
SECTION 01450 -	Mobilization/Demobilization
SECTION 01570-	Construction Traffic Control
SECTION 01750 -	Final Cleanup
SECTION 01800 -	Erosion and Sediment Control
SECTION 02230 -	Street Excavation, Backfill, and Compaction
SECTION 02235 -	Crushed Base Course
SECTION 02241 -	Barrier Rock
SECTION 02810-	Fence
SECTION 02910 -	Revegetation
SECTION 02930 -	Signing
	Bridge Foundation

SECTION 01010

SUMMARY OF WORK

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 1 GENERAL

1.3 WORK SEQUENCE

Add the following:

A. Project work must be completed during the low water time period. Complete all work **on or before, September 8, 2019** for each Bid Schedule awarded.
B. Work may not start prior to **May 15, 2019.**

1.4 CONTRACTOR USE OF PREMISES

Add the following:

A. Contractor may elect to camp on the Canyon Creek WMA during the duration of the project, with approval of the OWNER. Contractor shall follow all rules and regulations posted on the WMA. No sanitary or potable water services are available.

END OF SECTION 01010

SECTION 01050

FIELD ENGINEERING

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 3 EXECUTION

1.1 CONSTRUCTION SURVEY

A. Engineer will provide survey control (northing/easting) and benchmarks (local datum) for all designed alignments and profiles, as shown on the project drawings.

B. Contractor will be responsible for setting slope stakes and grade stakes at 50' intervals on tangent sections and at 25' on horizontal curves, based on Owner provided control and alignment staking. The contractor will be responsible to provide own blue top staking prior to paving. Limit grade stake tolerances to +/-0.04'.

PART 4 MEASUREMENT AND PAYMENT

Add the following:

A. Contractor construction surveying will not be measured for payment, and is considered incidental to other bid items in this contract.

END OF SECTION 01050

SECTION 01450

MOBILIZATION/DEMOBILIZATION

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This item shall consist of the prepatory work and operations necessary performed by the Contractor for the movement of personnel, equipment, supplies, and incidentals to and from the work site. The work includes those actions necessary for obtaining necessary permits required for mobilization; for the establishment of all offices and facilities necessary to work on the project; for premiums on contract bonds; for insurance for the contract; and for other work on the various items on the project site. Mobilization costs for subcontracted work shall be considered to be included.

B. Contractor's cost for administration, bonding, insurance, and site documents shall be included in mobilization and shall not be paid as a separate item.

C. All equipment moved to the project sites shall be in good mechanical condition and free of fuel, oil, lubrication, or other fuel leaks. The Contractor shall immediately remove any equipment potentially or actually discharging environmentally damaging fluids.

D. All equipment moved to the project sites shall be thoroughly cleaned before it is brought to the sites to prevent the introduction of weed seeds. Equipment removed fro the sites may not be returned to the sites again until it is thoroughly cleaned again.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. There will be no direct measurement of this item.

4.2 PAYMENT

B. Partial payments for mobilization/demobilization will be made based on the lump sum bid price as follows:

- 25% of the amount bid for mobilization/demobilization when the Contractor has moved on-site and begun construction activities.
- 50% of the amount bid for mobilization/demobilization when 25% of the contract amount (exclusive mobilization/demobilization) has been completed.
- 75% of the amount bid for mobilization/demobilization when 50% of the contract amount (exclusive mobilization/demobilization) has been completed.
- 100% of the amount bid for mobilization/demobilization when 75% of the contract amount (exclusive mobilization/demobilization) has been completed.

END OF SECTION 01450

SECTION 01570

CONSTRUCTION TRAFFIC CONTROL

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 2 PRODUCTS

2.1 TRAFFIC CONTROL DEVICES

Add the following:

D. Provide Type III barricades at all roadways closed to public access. Erect "Road Closed" or "Road Closed To Thru Traffic" sign(s) on all Type III barricades.

E. At areas designated closed to public access that are wider than a standard roadway width (16'), provide orange tubular markers (28" height) that delineate the closed area. Yellow ribbon caution tape may be used between tubular markers.

PART 4 MEASUREMENT AND PAYMENT

Delete this section and replace with the following.

4.1 MEASUREMENT AND PAYMENT

A. Construction traffic control will not be measured for payment, and is considered incidental to other bid items in this contract.

END OF SECTION 01570

SECTION 01750

FINAL CLEANUP

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of final cleanup of the project site prior to final acceptance.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CONTRACTOR RESPONSIBILITES

The contractor shall be responsible for final clean up at the end of the project to a level satisfactory to the owner. All construction debris, no mater how small, shall be collected and removed from the site. All wheel ruts shall be filled in and be leveled to match the adjacent grade and material. Re-seeding or re-sodding, or other re-surfacing may be necessary to repair any construction related impacts or damage.

All survey markings, stakes, temporary paint marks, flagging and other devices shall be removed regardless of who installed them. All excess pavement, concrete, gravel, soil, or other construction materials not intended for permanent use shall be removed.

All final slopes shall be dressed manually to remove woody debris, accumulated trash and oversized material. Any new slope or topsoil surfaces shall be hand raked to provide a uniform appearance. The contractor shall dress all gravel, pavement and concrete edges to eliminate abrupt edges and provide a smooth transition. All construction related temporary sediment control devices shall be removed as soon as practical.

PART 4 MEASUREMENT AND PAYMENT

4.1 PAYMENT

Unless specifically noted otherwise, all final cleanup work shall be incidental to other work items in the contract and no separate payment shall be made.

END OF SECTION 01750

SECTION 01800

EROSION AND SEDIMENT CONTROL

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing, constructing, and maintaining permanent and temporary erosion control and sediment control measures as shown on the project drawings and/or project related construction permits.

PART 2 PRODUCTS

2.1 GENERAL

A. Temporary and erosion control products utilized include but are not limited to backfill material; berms; brush barriers; erosion control blankets, bales, wattles, logs, rolls; erosion control culvert pipe; detention basins; fertilizer; geotextile; mulch; plastic lining; riprap; sandbags; seed; silt fence; and water.

2.2 EROSION CONTROL WATTLES

A. Where designated, provide a sediment retention product made from straw and coconut fiber reinforced with a 100% bio-degradable netting. Use wood stakes to secure sediment retention product in place, spacing per the manufacturer's recommendations. An acceptable product is *Sediment Stop*, manufactured by *North American Green*, or approved equal.

2.2 EROSION CONTROL BLANKETS

A. Where designated, provide a sediment retention product made from straw and coconut fiber reinforced with a 100% bio-degradable netting. Use wood stakes to secure sediment retention product in place, spacing per the manufacturer's recommendations. An acceptable product is *BioNet® S150BN™*, manufactured by *North American Green*, or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Provide permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, environmental permits, and as directed by the Project Representative. These erosion control measures shall be designed, implemented, and maintained by the

Contractor in accordance with Best Management Practices (BMPs) to control erosion and sediment release from the work site.

B. Install permanent and temporary erosion control measures according to the Storm Water Pollution Prevention Plan (SWPPP), if applicable, approved construction permits, and erosion control drawings.

C. When erosion control measures are not functioning as intended, immediately take corrective action.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

A. Erosion Control Wattles will be measured and paid as Lump Sum (LPSM) including all labor, equipment, materials and incidentals required for the completion of the work.

END OF SECTION 01800

SECTION 02230

STREET EXCAVATION, BACKFILL AND COMPACTION

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 1 GENERAL

1.3 DENSITY CONTROL TESTING

A. FIELD DENSITY TESTING

Delete this section and add the following:

In-place field density tests for quality assurance are at Contractors expense meeting AASHTO T 310 and ASTM D6938, Nuclear Densometer Methods. Quality assurance field density testing frequency is once per compacted lift, or as directed by Engineer.

Retesting of failing areas is at the expense of the Contractor.

B. LABORATORY MAXIMUM DENSITY and OPTIMUM MOISTURE

Delete this section and add the following:

Quality assurance tests will be made by the Contractors independent testing laboratory for each on-site natural soil or each source of off-site material, including borrow material, to determine the laboratory maximum density values and optimum compaction moisture content under AASHTO T99 or ASTM D698.

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

Add the following:

Obtain necessary burning permits if cleared and grubbed material is burned on site. All stumps within construction limits shall be grubbed under this contract.

3.4 EXCAVATION

Add the following:

Sheeting, Shoring, and Bracing: Except where trench banks are cut back on a stable slope, provide and maintain all sheeting, shoring, and bracing necessary to protect workers, and to protect adjoining grades and structures from caving, sliding, erosion or other damage in accordance with Occupational Safety and Health Standards (29 CFR Part 1926 – Construction Standards for Excavations), the Site Specific Health and Safety Plan, and other applicable codes and governing authorities.

PART 4 MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT AND PAYMENT

Delete this section and add the following:

A. CLEARING AND GRUBBING

1. Clearing and grubbing will not be measured for payment and is considered incidental to other work items in this Contract.

B. EXCAVATION AND EMBANKMENT

1. Excavation and embankment will be measured and paid by the Cubic Yard (CY) of in-place compacted material.

END OF SECTION 02230

SECTION 02235

CRUSHED BASE COURSE

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 2 PRODUCTS

3.3 FIELD DENSITY REQUIREMENTS

Add the following:

D. The Contractor is responsible for providing all compaction testing by an independent testing agency.

E. Compaction testing locations and frequency will be performed as follows:

Compaction Testing	Location*	Frequency
Crushed Base Course	Parking Lot & Access Road	1 every 100 feet

***** Station/Offset determined by Engineer

**Proof roll subgrade only for observation by Engineer prior to base course placement.

END OF SECTION 02235

SECTION 02241

BARRIER ROCKS

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing and placing barrier rocks at designated areas on the project drawings or as directed by the Engineer.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 GENERAL

A. Furnish hard, durable, angular barrier rock that is resistant to weathering and water action and free of organic or other unsuitable material. Do not use shale, rock with shale seams, or other fissured rock that may break into smaller pieces in the process of handling and placing.

B. Furnish barrier rocks that approximately measure 8 cubic feet (2.5 – 3.5 feet in nominal diameter as measured on the long axis). Embed barrier rocks 1/3 of the diameter below finished or existing grade. Backfill around embedded barrier rocks by tamping with hand tools and/or mechanical equipment. Space barrier rocks at 5 feet clearance as measured from edge to edge.

C. Install barrier rocks according to the project drawings or as directed by the Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Barrier rock placement will be measured and paid for by the each (EACH).

END OF SECTION 02241

SECTION 02810

FENCING

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing, erection, and placement of new fencing per the drawings and specifications.

PART 2 PRODUCTS

2.1 GENERAL

A. Barbed wire shall be zinc-coated, steel barbed wire meeting the requirements of ASTM A-121. Breaking strength of strand wire shall be not less than 950 pounds. Barbs shall be uniformly spaced from 4 to 5 inches apart. Minimum weight of zinc coating shall be Class I. Wire shall consist of two twisted strands of 12 ½ gauge wire. "Red Brand" and "OK Brand Premium" are examples of wire that meet ASTM A-121. **Wire breaking strength and coating certification shall be provided to the Project Manager.** Install all wire on non-FWP owned parcel side of posts.

B. Barbless wire shall be two smooth twisted strands of 12 ½ gauge wire: zinc coated steel meeting requirements of ASTM A-121 or equal. Breaking strength of a strand of wire shall be not less than 950 pounds, minimum weight of zinc coating shall be Class I. Install all wire on non-FWP owned parcel side of posts.

C. Woven wire shall have metallic coating Type Z, Class 1 and be No. 12 ½ Grade 60, or, have metallic coating Type Z, Class 3 and be No 14 Grade 125. All woven wire shall meet or exceed the requirements of ASTM A116. Install all wire on non-FWP owned parcel side of posts.

D. Brace panel wire shall be barbless, smooth 9 gauge **soft** wire meeting requirements of ASTM A-641. It will be used for constructing braces and panels, tying to anchors, etc. Or double wrap of woven barbless wire.

E. Staples. Wire staples of the barbed U-shaped type shall be used to fasten the wire fencing to the wooden posts. They shall be not less than 9 gauge galvanized, 1-3/4 inches long.

F. Nails. Shall be 40 d common galvanized.

G. Fence clips shall be not lighter than 12 ½ gauge, galvanized. They shall be used to fasten the wire to metal posts.

H. Where designated, stays shall be 30" long twisted wire fence specifically manufactured for use as fence stays and made from #9 gauge galvanized smooth wire.

I. Metal Posts. Metal posts shall meet the requirements of ASTM A-702 and be American manufactured. Painting shall be in accordance with good manufacturing practice. Same paint pattern shall be used throughout project site requiring installation of new metal posts. **Posts shall be 5½ feet long.** The metal shall be good commercial quality steel with maximum carbon content of 0.82%. Posts shall be tee section and shall have corrugations, knobs, notches, holes, or studs so placed and constructed as to engage a substantial number of fence line wires in proper position.

   a. Each line post shall have a steel anchor plate weighing not less than 0.67 pounds, tapered to facilitate driving and securely fastened in such a position that its top edge will be two to three inches below ground when the post is driven to the prescribed depth. **Post shall weigh 1.33 lbs. per L.F. of post.**

J. Wood Posts and Brace Rail. Posts and brace rail shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished round. **Panel posts** shall be **5 inch minimum diameter** and **7 feet in length**. **Line posts** shall be **5** inch minimum diameter and **7** feet in length, or as specified in the project drawings. All posts shall be treated with a solution conforming to AWPA standards. Penetration shall be at least ½ inch. Post shall be fully treated. Posts that are to be driven shall be tapered and treated. **Brace rail** shall be a minimum **4** inch diameter by **8** feet long, or as specified in the project drawings. All brace rail shall be fully treated conforming to AWPA standards. **Certification of AWPA treatment shall be provided to the Project Manager.**

K. Metal panels and line posts shall be constructed with 4" diameter, .330 wall thickness metal pipe with a minimum length of 8'. Brace rails shall be 3" diameter pipe with 0.25 wall thickness. Or as approved by the Engineer. Connections shall be mechanical or welded as approved of by the engineer.

L. Wood Split Rails. Wooden split rails shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished half round. **Wood rails** shall be **4½** inch minimum diameter and **8** feet in length. All rails shall be treated with a solution conforming to AWPA standards. Penetration shall be at least ½ inch. All wood rail shall be fully treated conforming to AWPA standards. **Certification of AWPA**

treatment shall be provided to the Project Manager. Fasten rails to posts with 8" TimberLok® screws or approved equal.

M. Brace Panels. Brace panels shall be placed at corners, endpoints and when run exceeds **30 rods or 500 feet**. Where the run requires a single brace, it shall be placed to split the difference when appropriate. Brace panels shall be constructed as depicted in drawings and shall provide for strong anchorage points and shall be aligned with fence line within a tolerance of 2 degrees.

N. Gates and Steel Panels. Wire gates shall be 12' (minimum) in width, or as designated on the project drawings. Gates shall be located in the field by the Engineer.

a. Where designated, wire gates and associated panels shall have **5** strands of barbed wire as the fence line they are in, with a vertical spacing the same as the fence line they are in. Wire gates 14' wide and less shall have 2 stays, and gates over 14' wide shall have 3 stays, equally spaced across the gate. Stays shall be minimum 2½" diameter treated wood and shall be tall enough to support all the fence wires at the correct height, or as approved by the Engineer. Each wire gate shall have a new single panel on each side and a mechanical over-center gate closer. Wire gates in jackleg fences shall have four strands of barbed wire. Posts and brace rails shall be the same as specified for line fence panels and corners.

b. Where designated, install pre-fabricated steel panel gates (various lengths) as shown on the project drawings. **Panel gates shall be powder coated brown or green in color, with 6-Bar, 2" diameter tubing, 16-gauge high tensile steel.** Provide 6"x8' treated posts for each single panel brace on each side of panel gate. Provide galvanized chain long enough to wrap around gate and adjacent brace panel for locking closure.

O. Stream Crossings. Stream crossings shall be minimum 20' wide and located 4' minimum on each side of the top of stream bank. Post and brace rail shall be the same as specified for line fence panels and corners. Stream crossings shall have 5 strands of smooth wire with a minimum of 6 metal stays per rod, spaced equally along the length of the PVC pipe described below. Stays shall be 30" long twisted wire specifically manufactured for use as fence stays and made from #9 gauge galvanized smooth wire.

a. Extend stays down past bottom wire attached to posts, creating a hinge point to pass debris. Thread bottom ends of stays though 1½" diameter PVC pipe suspended parallel to bottom wire. Bottom wire to be 1 foot above water surface.

b. Each stream crossing shall have a new single panel and mechanical over-center closure on each side.

P. Minor Drainage Channels are differentiated from depressions by having sandy gravel or cobble bottoms. Such channels may or may not have flowing water year-round. Minor channels may be fenced over without a stream crossing gate at the discretion of the Project Manager. Such channels shall have NO POSTS placed in the channel, and posts on either side shall be equally spaced from the edge of the channel. PVC pipe shall be hung under the fence at the channel in the same manner as described in Stream Crossings, to prevent livestock passage.

Q. Deadmen anchors shall be used at grade depressions. They shall consist of a plate or disc of 10 gauge or thicker mild steel of 12-inch diameter. A No. 5 rebar shall be welded in the center and a loop formed in the other end to accept the tie wire. Rebar length shall be 30 inches after the loop is formed.

a. Alternately, two steel fence posts may be driven in the ground at an angle such that the ends above the ground cross at the low point. Wire shall be securely attached to the two posts and used to anchor the fence. Duckbill anchors are also approved. Other anchor types may be accepted upon approval of the Engineer or Project Manager.

b. Anchor wires shall be tied such that all wire is above the soil surface. No anchor wire shall be buried. If any part of the deadman projects out from the fence line above ground, it shall be cut off no more than 4" from the anchor wire attachment. No sharp edges shall remain on cut ends.

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. "Clearing" shall consist of the falling of trees greater than 3 inches diameter at chest height, delimbing them, and cutting into six-foot sections. Clearing shall also include the disposal of stumps, brush, windfalls, limbs, sticks, piles of sawdust, rubbish, debris, vegetation, and other objectionable material occurring within the clearing limits or which interfere with excavation or embankment.

B. "Grubbing" shall consist of the removal from the ground and the disposal of roots, stumps, together with duff, matter, roots, and debris from the grubbing limits.

C. Construction methods for clearing and grubbing operations are as follows:

1. No stumps or roots shall remain more than 4 inches above the ground along the fence line.

2. Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed. Branches of trees extending

over the fence line shall be trimmed to give a clear height of 8 feet above the ground along the fence line. Width of clearing for fence line shall be 4 feet.

3.2 FENCE INSTALLATION

A. Post holes and excavations for footings and anchors shall be excavated on the lines established by the Engineer to the depths and cross-sections shown on the standard drawings. **All fence post hole excavations shall be on FWP property or easement, 12" from the surveyed property boundary line, marker, or monument.** Do not disturb any survey property corner monument or marker during fence installation. Leave all line-of-sight survey marker t-posts in place.

B. Wooden posts may be driven when so prepared and any damaged posts shall be repaired or rejected at the discretion of the Project Manager. In all cases where posts are repaired, the damaged area or split shall be given **two coats of preservative material** approved by the Project Manager. Posts shall be plumb when set. All posthole filling and backfilling work shall be in six-inch layers and each layer shall be solidly tamped and compacted as it is placed.

C. Posts that are cut or trimmed for any valid reason shall be given **two coats of preservative material** approved by the Engineer. Braces shall be securely nailed to terminal and brace posts. **Brace to post joint shall be coped or notched.** No square to round joint accepted.

D. Deadmen or anchors will be used at grade depressions or other places where the vertical space from the ground to the bottom fence wire has exceeded the design value within a one rod distance.

In such situations where the bottom of the depression is an intermittent stream channel with a sandy gravel or cobble bottom or an active ditch, the depressions shall be treated as a Minor Drainage Channel. Such channels shall have NO POSTS PLACED IN THE CHANNEL, and posts on either side shall be equally spaced from the edge of the channel. PVC pipe shall be hung under the fence at the channel in the same manner as described in Stream Crossings, to prevent livestock passage.

E. Brace panels shall be installed at angle points, corners, gates, or wherever a break in the terrain occurs. However, in no case shall brace panels be more than **30 rods or 500 feet apart**. See Table 1 for brace panel installation requirements. Brace wire shall be tight when twisted. Double wrap the wire at brace post tie-off. Cross the braces with the end of the wires to be tied off. **Barbed wire fence wire shall be tied off at each brace.**

F. Wood line posts shall be installed **every tenth post (165 feet)** or evenly spaced on **runs longer than 15 rods (247 feet).** In no case shall a line post be used as a substitute in a situation that would typically require a single, or double, brace.

Table 1. Brace Panel Installation Requirements

Panel Type	No. of Panels	Location Applications	
		Horizontal	Vertical
Single	**1**	**In Line, Each side of gates**	**Constant Grade**
Double	**2**	**Angle points < 90°**	**Grade Breaks < 45°**
Corner	**4**	**90° Corners**	**Grade Breaks > 45°**

G. All posts shall be plumb and solidly set in place after backfilling or driving has been completed.

H. Stretching by a motor vehicle will not be permitted; the power must be by or through a mechanical stretcher or device designed for such use.

I. Fence line shall be straight and square between corner points.

J. Fence clips shall be hooked and both ends twisted all the way around fence wire.

K. Tension shall be applied in accordance with wire manufacturer's recommendations.

L. Fence wire shall be wrapped around terminal posts and fastened to itself with at least four turns. Fence wire, in general, shall be placed on the side of the post opposite the site but on curves shall be placed so the force is against the post. At grade depressions and alignment angles, where stresses tending to pull posts from the ground are created, the wire fence shall be snubbed or guyed at the critical points by brace wire attached to each horizontal line of fence wire and the end of the combined strands being firmly attached to a "deadman" buried not less than two feet in the ground, or to an approved "anchor" at a point which will serve best to resist the pull of the wire fence. "Deadmen" also may be fastened to posts. Fence wire and brace wire shall be installed without nicks or significant abrasions. Nicks or abrasions that may lead to pre-mature wire breaks shall be rejected by the Project Manager and replaced at no cost by the Contractor.

M. U-shaped staples shall be driven diagonally across the wood grain so that both points do not enter between the same grain. In depressions where wire up-lift occurs, staples shall be sloped slightly upward, against the pull of the wire. On level ground and over knolls, staples shall be sloped slightly downward. Wire shall be stapled tightly

at corner, end, and pull posts. In no case shall staples be driven so tight as to damage the wire.

N. A cross-fence, not the property of the Owner, shall **not** be fastened to the Owner's fence but shall be terminated, in a workmanlike manner, adjacent thereto.

O. Upon completion, the fence shall be true to line and grade; **all posts shall be vertical and firm** and all wire shall be taut and the completed fence shall be completely acceptable in all respects. No openings shall be left that will permit stock to pass through the fence.

P. Exterior boundary fences shall have owner-supplied 4" x 12" boundary signs attached no more than 500 feet apart and 2 at every corner panel. Signs shall be securely fastened to posts, rails or between fence wires as determined by the Project Manager.

Additional owner-supplied 12" x 18" aluminum signs shall be installed at all exterior gates and corners where designated by the Project Manager. The cost of installing such signs shall be subsidiary to the project and shall not constitute a pay item and shall be considered incidental thereto and no payment shall be made for it.

Q. Weed Control: All equipment used during construction shall be thoroughly washed both inside, outside and underneath of all pickup boxes, trailers, trucks, etc. before entrance to the project area. Vehicles used to commute to and from job site shall be kept clean so as not to transport weed seed to project area. This cost shall be subsidiary to the project and shall not constitute a pay item and shall be considered incidental thereto and no payment shall be made for it.

PART 4 MEASUREMENT AND PAYMENT

4.1 BASIS OF MEASUREMENT

A. All types of fence will be measured by the linear foot (or rod) complete in place, on its actual alignment, **inclusive** of brace panels, and corners, and gates and associated gate panels. The measurement will be made on the fence line along the ground, from end post to end post, and include length of gates and gate panels, the intent being to measure the actual length of fence in place.

If it is necessary, in crossing depressions, to install a double section of fence, vertically, this extra section will be measured for payment.

B. Gates will be measured on a per each basis, **excluding brace panels.** In the case of double wildlife gates, this shall include both gates as a single unit.

C. Stream Crossings will be measured in the same method as a gate.

D. Panels will be measures on a per each basis.

E. Deadmen anchors, minor drainage channels, tree anchors, and any line clearing required **shall be subsidiary to the fence and shall not constitute pay items and shall be considered incidental to fence construction.**

4.2 BASIS OF PAYMENT

A. All types of fence shall be paid for per foot (or rod) basis, measured as specified above.

B. Gates will be paid for on a unit price per each basis.

C. Stream Crossings will be paid for on a unit price per each basis.

D. Panels will be paid for on a unit price per each basis.

END OF SECTION 02810

SECTION 02910

REVEGETATION

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 1 GENERAL

1.1 DESCRIPTION

Add following:

This work also includes conserving, placing, and finishing topsoil placement at designated areas on the project drawings or as directed by the Engineer.

PART 2 PRODUCTS

2.1 SEED

Add the following:

Utilize the following seed mix for all areas to be seeded.

Seed Name	% Pure Live Seed	Lbs. Per Acre
Western Wheatgrass	30	*
Bluebunch Wheatgrass	20	*
Hard Fescue	20	*
Slender Wheatgrass	15	*
Smooth Bromegrass	15	*

* Drilled Rate = 8 lbs/acre, Broadcast and Hydroseed Rate = 16 lbs/acre

2.2 TOPSOIL

Add the following:

Utilize all salvaged topsoil conserved from clearing and grubbing operations to cover excavation and embankment slopes prior to fertilizing, seeding, or mulching.

2.4 FERTILIZER

Add the following:

When broadcast seeding, apply the fertilizer separately. When drill seeding, do not apply seed and fertilizer in a single mixture. The fertilizer must be applied separately, either broadcast before seed application, or surface banded during seeding.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

Delete this section and add the following:

A. Revegetation will be measured and paid by the lump sum (LPSM) including all labor, equipment, materials and incidentals required for the completion of the work.

B. Placing conserved topsoil will not be measured for payment and is considered incidental to other work items in this Contract.

END OF SECTION 02910

SECTION 02930

SIGNING

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing and placement and/or removal and reset of signs and sign posts at designated areas on the project drawings or as directed by the Engineer. This work also consists of the mounting and complete installation of FWP supplied signing at designated areas on the project drawings or as directed by the Engineer.

PART 2 PRODUCTS

2.1 WOOD POSTS

A. Furnish posts from dry no. 1 grade Douglas fir, southern or Ponderosa pine, hemlock, spruce, or western larch conforming to AASHTO M 168. Treat the posts with water-borne preservative ACA, ACZA, or CCA according to AWPA Standard C14 except the minimum preservative retention is 0.40 pounds per cubic foot.

2.2 HARDWARE

A. Furnish galvanized steel or aluminum alloy material for lag screws, washers, clip angles, wood screws, shear plates, U-bolts, clamps, bolts, nuts, and other fasteners.

PART 3 EXECUTION

3.1 GENERAL

A. Sign locations may be changed to fit field conditions as approved by the Engineer. Determine sign support lengths measured from the top of the sign to bottom of the footing. Backfill signs supports and post by tamping with hand tools and/or mechanical equipment. Install sign supports according to the project drawings or as directed by the Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Sign post and panel installation (FWP supplied sign panels) will be measured and paid for by the each (EACH).

END OF SECTION 02930

TECHNICAL SPECIFICATIONS – BRIDGE FOUNDATION

SECTION 1 - Excavation, Backfill, and Grading
SECTION 2 - Structural Concrete
SECTION 3 - Reinforcing Steel
SECTION 4- Pour Holes in Steel Deck and Beam Tops

Sees 1 Thru 4

SECTION 1 - EXCAVATION, BACKFILL, AND GRADING

1.01 DESCRIPTION

This Section covers excavation and back filling requirements for placement of the new concrete foundation elements for the existing bridge shown on the plans and grading requirements to reshape the existing gravel surfacing material on the bridge deck.

1.02 EXCAVATION

A. For New Poured-In-Place Concrete Footings

Excavations will be done with the existing bridge undisturbed and in place, so it's anticipated that hand excavation methods will be required to dig out to the planned bottom of footing elevations shown on Bridge Plan Sheet No. 1. Excavations need be only as wide as necessary to allow setting the forms to pour the new concrete footings. Air tools or other mechanically assisted hand tools may be used to break up the soil and gravels to make removal easier. The excavated materials shall be placed on the upslopes of the stream banks under the bridge in-so-far as possible for temporary storage while the footings are formed and poured. If additional storage room is required for excavated materials, it may be moved to the sides of the bridge in stone boats or by other suitable means and temporarily stored to the side above the level of the stream.

1.03 BACKFILL

A. Backfill For New Bridge Foundation Elements

Backfill work may begin after the continuous concrete footings are poured and the forms removed. Backfill shall be from the same soil materials removed and shall be placed on the sides of and over the tops of the continuous footings after the polyculvert forms are placed. Backfill placed around the polyculerts will keep them securely in place while they're filled with concrete. The backfill shall be graded to slope upward under the bridge ends in a fashion similar to the present ground configuration Any excess backfill materials may be placed against the present stream banks on either side of the bridge and evenly graded to match the final slopes under the bridge ends.

1.04 GRADING

A. FOR EXISTING GRAVEL SURFACING ON BRIDGE DECK

After concrete pour holes in the steel bridge deck have been closed with metal weld plates, the existing road gravel on the deck shall be graded to provide positive drainage from the upstream side to a new drainage outlet to be provided in the 2"x 6" curb at the center of the downstream side (refer to the Bridge Profile shown

on Plan Sheet). Currently, drainage water becomes ponded near the center of the bridge deck. Elevations along the upstream curbing are currently higher than along the downstream side and deck elevations are higher near the bridge ends, so a minimal amount of grading will be required to smooth the gravel surfacing and provide the desired free drainage from the deck. Care shall be taken not to disturb the existing 2" pressure treated plank covering the small gap between the flatbed cars. Any damage done to this timber or 2" x 6" curbing by carelessness during grading operations will be corrected by replacing any damaged lumber with new pressure treated lumber of similar size and quality.

1.05 REFERENCE DRAWINGS

Bridge Foundation Plan Sheet No. 1 of 1.

END OF SECTION

SECTION 2 - STRUCTURAL CONCRETE

2.01 DESCRIPTION

This section covers all poured-in-place concrete work for the following parts of this project.

A. New continuous concrete footings.
B. New concrete support pillars in polyculvert forms.

2.02 GENERAL

Concrete proportioning, mixing, transporting, forming, placing, curing, and other construction methods shall conform to all applicable specifications contained in Section 03310 of the Montana Public works Standard Specifications, current edition.

2.03 CONCRETE CLASSIFICATION AND SPECIFICATION

All poured-in-place concrete shall be Class M-4000. Concrete mixes and strength shall meet the following requirements:

Minimum 7-day lab strength .....2,800 psi
Minimum 28-day lab strength .....4,000 psi
Maximum aggregate size.....3/4"
Maximum water to cement ratio .....6 gal. / sack (.50 by weight)
Slump range .....1-1/2" to 4" maximum
Entrained air content.....4% to 7%

Additives such as a super plasticizer will be allowed to provide easier placement and a more flowable mix as long as strength and entrained air content are not adversely affected.

2.04 POLYCULVERTS

Corrugated polyculvert material of the size and placements shown on the plans will be used to form the new concrete pillars for providing added support to the existing steel bridge members. These will remain in place after being filled with concrete. Corrugated polyculverts will be as that stocked by Power Townsend Co. in Helena, Montana or equal.

2.05 CONCRETE POURING AND FINISHING

A. **Pouring** - Concrete footings and pillars will be poured from the upstream and downstream sides of the bridge wherever practicable. To pour interior pillars and inner portions of the footings, pour holes of up to 6" diameter or slightly larger may be provided by cutting holes thru the top of the steel bridge deck and thru the stops of the hat shaped steel sections and part of the steel plates at the bridge centerline. The concrete shall be deposited using suitable boots and trunks to deposit the

concrete thru the pour holes and into the forms and polyculverts. Refer to Section 4 for cutting and repairing the pour holes.

B. **Finishing** - Float finish tops of concrete footings and concrete pillar tops. Slope concrete on pillar tops to drain.

2.06 CONCRETE SAMPLING AND TESTING

A. Concrete sampling and testing will be required for this project. If ordered, the actual sampling and testing will be done by an independent testing lab.

B. For concrete sampling and testing requirements, the following applies:

1. Take one (1) sample per pour - test for slump and air content.
2. From each sample make three (3) cylinders for lab compressive testing.
3. Break one (1) cylinder at 7 days.
4. Break two (2) cylinders at 28 days.
5. Send all test reports to Owner within 2 days.

C. Costs for Concrete Sampling and Testing - All costs for concrete sampling and testing as herein specified will be paid for by the Contractor and included within his bid price for the project.

2.07 REFERENCE DRAWINGS

Bridge Foundation Plan Sheet No. 1 of 1

END OF SECTION

SECTION 3 - REINFORCING STEEL

3.01 DESCRIPTION

This section covers furnishing and placing all concrete reinforcing steel of the quantity, type, and size shown in the drawings and all requirementS as specified herein.

3.02 GENERAL

Materials and workmanship for furnishing and placing reinforcing steel shall meet all applicable requirements of Section 03210 of the Montana Public Works Specification, current edition.

3.03 MATERIALS

All material used in this work shall be new and shall meet the following requirements:

A. **Reinforcing Steel** - Reinforcing steel shall be of the deformed type and shall meet the requirements of ASTM A-615, Grade 60 or Grade 40.

3.04 INSTALLATION REQUIREMENT

A. **Reinforcing Steel** - Reinforcing steel shall be accurately placed as detailed on the project drawings, bent and lapped as shown, and securely tied before concrete is poured. Masonry blocks and steel chairs shall be used if necessary to assure accurate placement and bars shall be wire-tied at all intersections and lapped bar locations.

3.05 REFERENCE DRAWINGS

Bridge Foundation Plan Sheet No. 1 of 1.

END OF SECTION

SECTION 4 - POUR HOLES IN STEEL DECK AND BEAM TOPS

4.01 DESCRIPTION

This section covers the requirements involved in providing holes in the existing steel pan bridge decking and top flanges of the hat shaped steel sections in order to pour concrete for the foundation elements at these locations.

4.02 GRAVEL REMOVAL

Gravel shall be removed from the existing bridge deck only as required to reveal the surface of the steel pan decking at the planned pour hole locations.

4.03 CUTTING HOLES

Locations for required pour holes shall be accurately determined from plan information and field measurements before proceeding in order to insure that holes aren't over-cut to line up with the foundation forms and polyculvert placements below. Square holes cut with metal saws or cutting torches are acceptable for providing holes thru the 2" metal pan decking. Providing round holes using a cutting torch is the preferred method for cutting thru the tops of the hat shaped steel sections and steel plate metal at the bridge centerline. Holes shall be no larger than 8" x 8" in the metal pan decking and 6-1/2" diameter in the steel sections.

4.04 REPAIRING POUR HOLES

Pour holes cut thru the steel plates and tops of the steel hat sections shall be repaired by welding steel plates over the holes. Plates shall be of the size and thickness shown on the drawings or larger if any of the pour holes are over-cut. Minimum welding to secure the plates to the steel below will be 1/4" x 2" fillet welds on each side of plates. To repair the holes cut thru the 2" pan decking, a piece of 2" treated timber shall be cut to fit the hole in the steel pan decking. These pieces shall be inserted down into the pan cutouts to bear on the steel plates below and be covered with gravel surfacing to hold them in place.

4.05 REFERENCE DRAWINGS

Bridge Foundation Plan Sheet No. 1 of 1.

END OF SECTION